

We claim:

1. An assembly comprising:

a substrate having a display area and at least one receptor site configured to receive a functional block, said functional block deposited within said receptor site, embedded below a surface of said substrate, and being outside said display area;

a first barrier layer deposited over said display area, said first barrier layer not covering said functional block;

a first patterned electrode layer deposited over said first barrier layer, said first patterned electrode layer making contact to said functional block;

a display medium deposited over said first patterned electrode layer;

a second patterned electrode layer deposited over said display medium; and

a second barrier layer deposited over said second patterned electrode layer.

2. An assembly as in claim 1 further comprising:

a planarization layer deposited over said substrate, said planarization layer covering said functional block and having contact vias created therethrough to allow contact to said functional blocks.

3. An assembly as in claim 1 wherein said substrate is selected from a group consisting of plastic, polymer, polyamide, polycarbonate.
4. An assembly as in claim 1 wherein said substrate is flexible
5. An assembly as in claim 1 wherein one of said first patterned electrode layer and said second patterned electrode layer is transparent.
6. An assembly as in claim 1 wherein one of said first barrier layer and said second barrier layer is transparent.
7. An assembly as in claim 1 wherein said first barrier layer and said second barrier layer substantially seal said display area.
8. A method of making an electronic assembly:
  - providing a display area on a substrate having at least one receptor site configured to receive a functional block, said functional block deposited within said receptor site, embedded below a surface of said substrate, and being outside said display area;

depositing a first barrier layer over said display area, said first barrier layer not covering said functional block;

depositing a first patterned electrode layer over said first barrier layer, said first patterned electrode layer making contact to said functional block;

depositing a display medium over said first patterned electrode layer;

depositing a second patterned electrode layer over said display medium; and

depositing a second barrier layer over said second patterned electrode layer.

9. The method as in claim 1 further comprising:

depositing a planarization layer over said substrate, said planarization layer covering said functional block and having contact vias created therethrough to allow contact to said functional blocks.

10. The method as in claim 1 wherein said substrate is selected from a group consisting of plastic, polymer, polyamide, and polycarbonate.

11. The method as in claim 1 wherein said substrate is flexible.

12. The method as in claim 1 wherein one of said first patterned electrode layer and said second patterned electrode layer is transparent.
13. The method as in claim 1 wherein one of said first barrier layer and said second barrier layer is transparent.
14. The method as in claim 1 wherein said first barrier layer and said second barrier layer substantially seal said display area.
15. The method as in claim 1 further comprising:  
depositing a contact pad within said display area to enable interconnections from said first patterned electrode layer and said second patterned electrode layer to said functional block.
16. The method as in claim 1 further comprising:  
blocking said functional block during depositions of said first barrier layer and said second barrier layer.